Hospital Surveys

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2008 IPOM Requirements—Hospital Reviews

In the 2008 IPOM, CDC recommends:

- Reviewing each delivery hospital's medical records at least once every five years
- Conducting hospital policy surveys every three years

Goals of IPOM recommended activities

- Program evaluation
- Quality assurance
- Continuous quality improvement

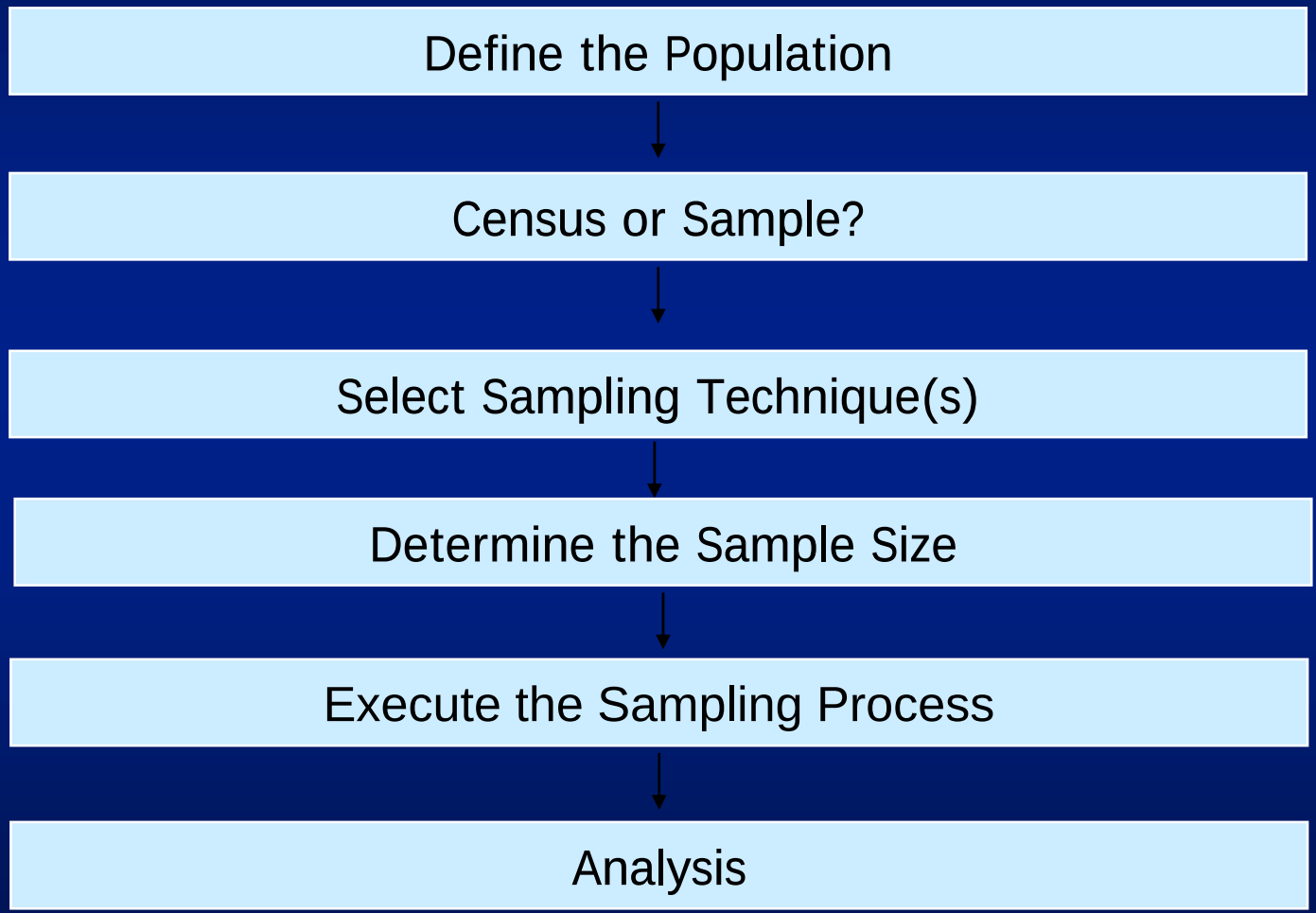
Objectives

- ...
- To estimate annual state-wide Hep-B screening and birth dose coverage statistics
- ...

Overview

- 2008 IPOM requirements for hospital record reviews and policy surveys
- Conducting medical record review in a hospital
- Selecting hospitals and combining data to estimate annual state-wide Hep-B screening and birth dose coverage statistics
- Collaboration with other health dept. staff on medical record reviews

The Sampling Design Process



Define the Target Population

The target population is the collection of elements or objects that possess the information sought by the researcher and about which inferences are to be made. The target population should be defined in terms of elements, sampling units, extent, and time.

- An **element** is the object about which or from which the information is desired, e.g., the respondent.
- A **sampling unit** is an element, or a unit containing the element, that is available for selection at some stage of the sampling process.
- **Extent** refers to the geographical boundaries.
- **Time** is the time period under consideration.

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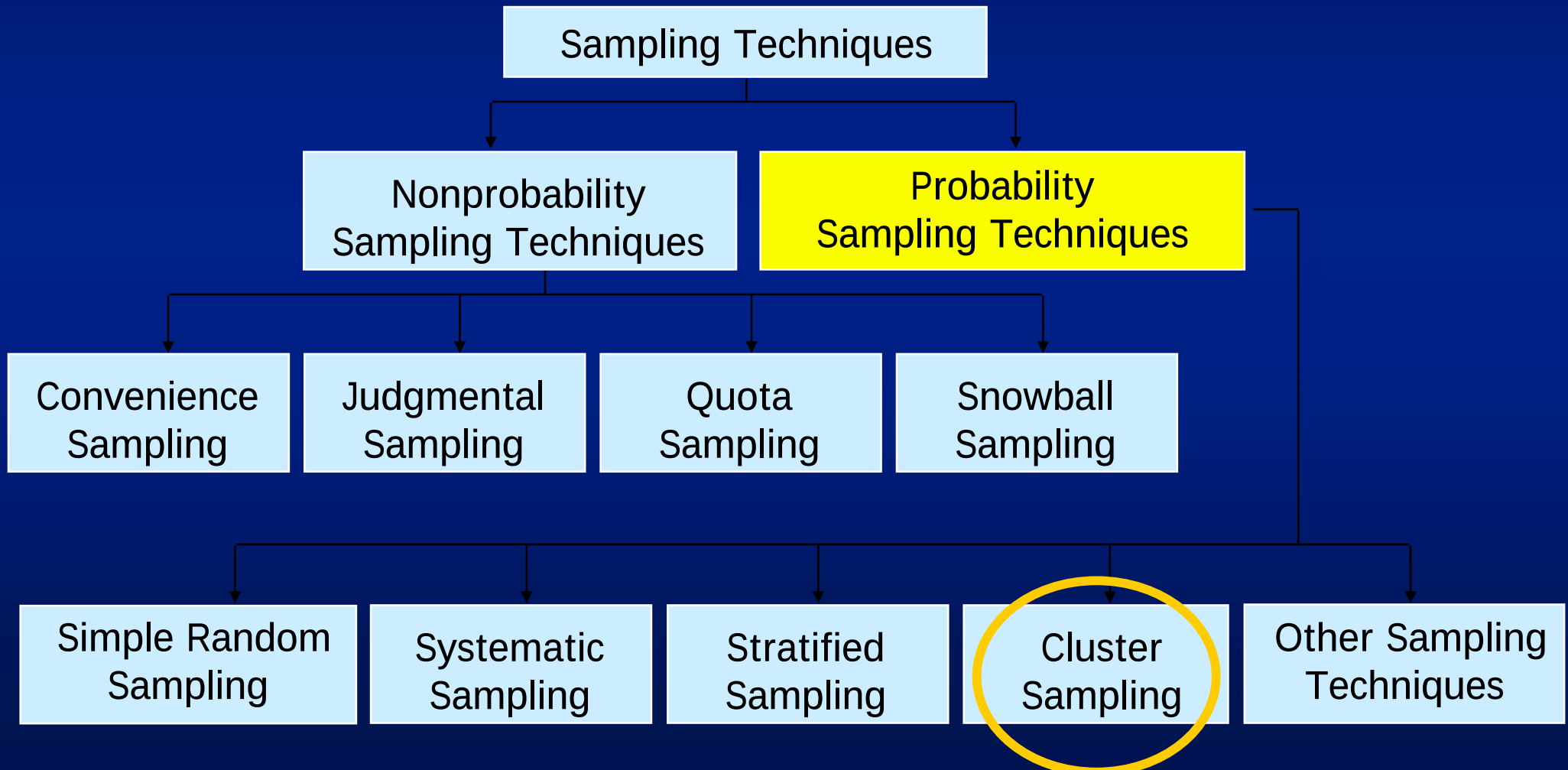
Target Population

- Reviewing each delivery hospital's medical records at least once every five years
  - All hospital ***birth records*** for specified time period from hospitals with 100 or more births in grantee jurisdiction
- Conducting hospital policy surveys every three years
  - All ***hospitals*** in specified time period with 100 or more births in grantee jurisdiction

Sample vs. Census

Type of Study	Conditions Favoring the Use of Sample	Conditions Favoring the Use of Census
1. Budget	Small	Large
2. Time available	Short	Long
3. Population size	Large	Small
4. Variance in the characteristic	Small	Large
5. Cost of sampling errors	Low	High
6. Cost of nonsampling errors	High	Low
7. Nature of measurement	Destructive	Nondestructive
8. Attention to individual cases	Yes	No

Classification of Sampling Techniques



Simple random sampling

Birth cohort survey – simple random sample of all births in state for specified time period (sampling frame from vital records)

- Pros –
  - Simple design and analysis
  - Efficient – small total sample size
- Cons –
  - visit almost all hospitals
  - Not designed to give information about individual hospitals

Stratified Sampling

- Lot Quality Assurance (LQA)
  - Pros:
    - Make decisions about individual hospital performance
    - Get estimate of state-wide coverage
  - Cons:
    - Trying to accommodate multiple outcomes with a single LQA sampling plan
    - Lack of familiarity
    - Interpretation of results

Cluster Sampling

- Two-stage cluster survey
  Births clustered in hospitals
  - 1st stage: select hospitals
  - 2nd stage: select sample of birth record

  - Pros –
    - Visit fewer hospitals
    - Get estimate for individual hospital coverage
  - Cons –
    - More complicated design and analysis

Selecting Hospitals
Sample or Census?

For smaller jurisdictions, it might make the most sense to visit all birthing hospitals during a single calendar year

- Feasibility
- Variance
  - One or more dominant hospitals –
    - Consider designating as self-representing sampling units

Example: VT

ID	BIRTHS	MNAME
6130060	349	Brattleboro Memorial Hospital
6130015	435	Central Vermont Medical Center
6130140	275	Copley Hospital
6130001	2214	Fletcher Allen Health Care
6130200	283	Gifford Medical Center
6130150	202	North Country Hosp & Hlth Ctr
6130225	238	Northeastern Vermont Reg Hosp
6130212	465	Northwestern Medical Center
6130120	273	Porter Medical Center
6130210	585	Rutland Regional Medical Ctr
6130040	490	Southwestern Vermont Med Cntr
6130250	216	Springfield Hospital

Deciding how to sample the hospitals in your jurisdiction (cont'd)

- For larger grantees (CA: 267 eligible hospitals in 2003 AHA database), sampling all hospitals during a single year may not be feasible
- In this case, the grantee will want to consider the way that the hospitals are sampled over two or more years if statewide estimates are desired

Sampling Hospitals – cont'd

- Considerations:
  - Stratification:

    Objective is to reduce variance
    - Public/private?
    - Large/small?
  - Self-representing hospitals

Sampling frame for hospitals

- State vital records: tabulate by birth facility
- Other program information
- American Hospital Association database (must pay for access, not entirely up-to-date)

Tips for Randomizing Lists

Hosp #	Hospital Name	# births	=rand()
1	BMH	349	0.283289
2	CVMC	435	0.169221
3	CH	275	0.498878
4	FAHC	2214	0.514932
5	GMC	283	0.214711
6	NCHHC	202	0.853608
7	NVRH	238	0.603371
8	NMC	465	0.007408
9	PMC	273	0.959466
10	RRMC	585	0.407291
11	SVMC	490	0.676405
12	SH	216	0.879291

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Sort by rand()

Hosp #	Hospital Name	# births	=rand()
8	NMC	465	0.007408
2	CVMC	435	0.169221
5	GMC	283	0.214711
1	BMH	349	0.283289
10	RRMC	585	0.407291
3	CH	275	0.498878
4	FAHC	2214	0.514932
7	NVRH	238	0.603371
11	SVMC	490	0.676405
6	NCHHC	202	0.853608
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9	PMC	273	0.959466

Analysis

- Appropriate analysis depends on survey design
  - Need to account for clustering in analysis of cluster surveys (even if you select a sample of birth records from every hospital in a single year)
  - Use
    - SAS Proc Survey
    - Stata
    - SUDAAN
    - Others ?

Assistance

- Consult a statistician early and often